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SOME ECONOMIC LOSSES IN THE BUILDING TRADES.

ALL who cling to the *a priori* method of economic investigation base their reasoning on the tendency of labor to seek the point of least resistance, or, as it is more frequently set forth, on the tendency of man to satisfy his desires with the least possible exertion. The "economic man," always seeking the greatest returns for the least effort, seems to control the directorate of every important industrial and commercial establishment. His influence gives assurance that in every department of trade and industry the most productive and least wasteful methods will be adopted; that with the progress of invention and discovery the direct and indirect waste of effort will be lessened; and that the results, in proportion to labor or effort, will be increased to the greatest possible extent. Every machine which inventive genius produces is carefully tested, and the relation of its cost to its efficiency in increasing the productiveness of labor is anxiously computed. Whenever a new invention, whether of a machine or a method, promises a gain, however slight, in the net products of labor, it rapidly displaces old devices. It is no exaggeration to say that in the resulting industrial revolution of recent years the productiveness of labor in some lines has been increased many fold. But in some cases these changes, though apparently increasing the results of human effort, have surrounded that effort with adverse economic conditions, thus neutralizing the supposed economic gain or even turning it into a loss. This has occurred under circumstances which render a return to the method of greatest effectiveness impossible.

These unexpected or overlooked results are chiefly noticeable in the building trades, to a few of the branches of which the following observations will be confined. In carpentry labor-saving machinery has accomplished remarkable changes during the past three decades. Only the older generation of house carpenters, and a few younger men who learned their trade under more conservative conditions, can now make doors, shutters, sashes or frames with any fair degree of dexterity. The introduction of machinery has transferred that work to the planing mills, and the work of the house carpenter is limited to fitting the products of the mills together. When the change was first extensively introduced twenty-five or thirty years ago it effected a great reduction in the cost of building operations. The steam planer, shaper, and mortising machine began to turn out work at a cost that seemed phenomenal. The skilled carpenter, who used to test the strength of his antiquated seven-by-nine sashes by standing on the cross bars, was displaced for a great part of the year by the "machine hand," who having less knowledge and training could be secured at lower wages. The carpenter had been earning wages ranging from one to two dollars per day according to the locality. A "steady job" was the natural condition of his trade. In winter he made sashes, doors, frames and other articles, and in summer he was out on the buildings under construction. With the introduction of the new methods his winter work disappeared and the increased competition for what may be called the remainder of his trade lessened the wages obtainable during the working season. There was in consequence a great reduction in the cost of carpentry. But the carpenter showed his relationship to the "economic man." His services could not be dispensed with entirely. They were absolutely necessary during a part of the year, and to that end (in an economic sense) he must live during the idle interval. For a time that living must have been a serious problem. But the condition of the trade warned young men from learning it, and conditions for those remaining gradually improved. In time the trade adjusted itself to the new conditions, and the house carpenter became able to obtain quite as much wages for the "working months" as was previously paid for the entire year. The friction of supply and demand in the labor market now gives him pay for the idle time which results from the introduction of machinery. Estimated by the hour, his wage, while working, is from twice to three times as much as it was three decades ago, and the consequent increase in what may be called the skilled part of his work goes a long way toward counterbalancing the cheapness secured by the more extended use of machinery.

It is impossible to make an approach toward accuracy in estimating the ratio of profit and loss. But it is evident that, even if the natural and gradual increase in time wages should change the gain from the use of machinery into a loss, it would be impossible for even the "economic man" to return to what would be really the cheaper method of production. The house carpenter will not accept the old wages during the working season on the strength of a promise of steady work at sash and door making during the otherwise idle months. He has little faith in any such promise. The condition of every trade is unstable, and an employer would be equally unwilling to substitute hand work for machinery during the period of indoor work, on the expectation of securing the services of the workman at cheaper rates during the building season.

Another obstacle is found in the fact that planing-mill work and house carpentry have become different lines of business. Waste occurs through the payment for idle time, and although the loss is not a natural necessity it is rendered unavoidable by the commercial relations of the trade.

In steam fitting a similar change has taken place within a shorter period. It was a natural condition in the seventies for a steam fitter to have steady work, and his wages varied from $1.50 per day upward. During the latter part of winter and through the spring months he built radiating coils of iron pipe and engaged in lines of work which have since passed to the blacksmith shop and the foundry. With the introduction of the cast-iron radiator and boiler came a decided fall in the cost of steam and hot-water heating. The new radiators were found to be not only cheaper but more open and cleanly. There was no more work for the steam fitter building coils "in the shop," his service being required only for connecting boilers and radiators in buildings. For a time the working mechanics in the trade suffered through the change. Work was limited to half the year, and wages were still lower. But the natural result was a drifting away from the trade, until the scarcity of men during the working season had a compensating influence. Time wages in the trade have more than doubled during the past twenty years, the workmen being now able to secure their yearly maintenance, according to recognized standards of living, by working during the shortened period of employment. The change caused by the introduction of cast-iron radiators lessened the cost of heating apparatus, but necessitated a period of idleness for steam fitters each year. Now that they are able to secure sufficient wages during the working months to compensate for the idle period the cost of fitting up a heating plant is greater than under the old conditions of steady work and lower wages. Had the progress of invention done away entirely with the work of the journeyman steam fitter the cheapening would have been permanent. But, as the changes have made a period of enforced idleness which must be paid for, the reduction of cost was merely temporary. A return to the old methods, though it would give greater product in proportion to outlay, is not at present possible. Industrial forces are prevented from reaching their natural level by the same forces that are noticeable in the carpenters' trade. Architects, too, have accepted the new conditions, and specify the new fixtures in all contracts.

The much abused plumber is not generally regarded as subject to the ordinary laws of economics, yet recent changes in his work closely resemble those which have taken place in other building trades. The change from steady to temporary employment has been perhaps less marked, owing to the "jobbing" and repairing in which he has won or lost his reputation. But innovations have caused an idle period in his yearly work, and the law of supply and demand has given him compensation in the form of higher wages during the working months. While the time between outside "jobs" was occupied in making lead traps and bends, and in work which has passed to the brass finisher, employment was steady and wages ranged low compared with present rates. But there are now only a few plumbers of the old school who can make lead traps, and their services are never required for that work. When the old methods were in vogue the making of three four-inch traps was regarded as a fair day's work. A man sitting beside a modern machine can turn out many score in the time formerly allotted to three. Contrary to the general rule the product of the machine is superior in many ways to the handmade article. The work of connecting fixtures in buildings has also been materially lessened by more recent inventions. The slow, skillful handling of lead has been superseded to a great extent by new methods, but is still an essential part of the work. The lead trap machines and other innovations made a marked reduction in the cost of work. But a few years of partial idleness brought about conditions which enabled mechanics to secure proportionately higher time wages, thus neutralizing the economic gain temporarily secured by the labor-saving inventions.

In bricklaying and masonry the contrast between British and American conditions illustrates the change from old to new conditions in other building trades. In Great Britain employment is far more steady on account of the general use of fireplaces, grates, and other adjuncts requiring the work of the bricklayer and mason. In the United States and Canada the bricklayer leaves the ordinary building after finishing the walls and chimneys, his work being, in consequence, less steady than in Great Britain. The natural force of competition enables him to obtain proportionately higher rates for the time of actual employment, the consumers being forced virtually to remunerate him for lost time. Stoves, furnaces, and various systems of artificial heating are adopted on account of climatic conditions, and the nature of the western fuel supply, rather than through a desire for cheapness. But the effect has been similar to that of the cheapening inventions alluded to above. Employment has been rendered less continuous in certain necessary branches of the building trades, with a consequent increase in the cost of their products.

It is evident that when a labor-saving or cheapening invention dispenses to a limited extent with any particular trade or calling, and the essential work remaining is crowded into a certain season, there must be economic waste through intervals of enforced idleness. Although the result may be an immediate lessening of the cost of production, the advantage may subsequently disappear or be changed into an actual loss through the necessity of remunerating the partially displaced workers for their lost or idle time. When such a situation arises no way at present appears by which the pressure of competition can force labor back to its more productive channels.

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